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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 10/560,097
Filing Date: April 03, 2006
Appellant(s): CORNES ET AL.

SYNGENTA CROP PROTECTION, INC.
William A. Teoli, Jr.
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed October 9, 2009 appealing from the Office action mailed January 22, 2009.

(1) Real Party in Interest

The examiner has no comment on the statement, or lack of statement, identifying by name the real party in interest in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The following is a list of claims that are rejected and pending in the application:
Claims 1-15 and 18.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

5,716,901	Fenderson et al.	02-1998
6,365,550	Feucht et al.	04-2002
5,981,432	Hudetz et al.	11-1999

Banks et al., Glyphosate as a Postemergence Treatment for Johnsongrass Control in Cotton and Soybeans, American Society of Agronomy, 69:579-582, 1977. Abstract.

Armel et al., Mesotrione, Acetochlor, and Atrazine for Weed Management in Corn, Weed Technology, Volume 17:284-290, 2003.

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1-6, 10, 15 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fenderson et al. (US 5,716,901) in view of Banks et al., Glyphosate as a Postemergence Treatment for Johnsongrass Control in Cotton and Soybeans, *American Society of Agronomy*, 69:579-582,1977, Abstract.

Appellant claims a method for the season-long control of unwanted vegetation, said method comprising a single post-emergence application of a herbicidal combination comprising a 2-(substituted benzoyl)-1,3-cyclohexanedione or metal chelate thereof, glyphosate or a salt thereof and an acetamide.

Determination of the scope and content of the prior art

(MPEP 2141.01)

Fenderson et al. teach synergistic application of dimethenamid with at least one other herbicide (see the abstract and column 1 lines 47-59). It has been found that the co-application of dimethenamid and at least one other herbicide results in better and longer-lasting control of undesired plant growth (see column 1 lines 47-50). Examples of suitable herbicides include chloroacetamides (i.e. alachlor, acetochlor, metolachlor), glyphosate, sulcotrione, etc. (see column 2 lines 35-40, column 3 lines 5-10, column 6 lines 6-9 and 38). Both pre and post-emergence application to undesired weeds is possible with the combination (see column 4 lines 44-47 and column 7 lines 31-33). The formulations are particularly suitable for crops, such as, soybean and maize (corn) (see column 5 lines 62-64 and column 6 lines 52-62). The formulations are suitable for post-emergence application to a variety of broadleaf and grassy weeds, including *Sorghum halepense* (seedling Johnsongrass) (see column 4 lines 44-47 and column 5 lines 1-2). The formulation can be formulated as a 2-way or 3-way mix (see column 7 lines 15-23 and 56-64, and the examples). Example 4 discloses a single application of the 3-way synergistic combination of dimethenamid/sulcotrione and atrazine:

§	Compound a.i./a	Reflexion control	expected additive effect	synergistic effect
	Atrazine 1500	23	—	
	Dimethenamid/Atrazine 1080/750	30	—	
	Sulcotrione/Atrazine 150/750	26	—	
Q	Sulcotrione/Atrazine 210/750	33	—	
	Dimethenamid/Sulcotrione/Atrazine 1080/150/750	55	56	+39
	Dimethenamid/Sulcotrione/Atrazine 1080/210/750	57	59	+42
		S/Lacum/ Chenopodium		
§		32		
	Atrazine 1500	16	—	
	Dimethenamid/Atrazine 1080/750	36	—	
	Sulcotrione/Atrazine 150/750	23	—	
	Sulcotrione/Atrazine 210/750	23	—	
Q	Dimethenamid/Sulcotrione/Atrazine 1080/150/750	97	35	+44
	Dimethenamid/Sulcotrione/Atrazine 1080/210/750	100	39	+41

Efficacy was evaluated 14 days later (see Example 4 in column 10 and claims 1-4).

Ascertainment of the difference between the prior art and the claims (MPEP 2141.02)

Fenderson et al. exemplify a synergistic combination of 2-(substituted benzoyl)-1,3-cyclohexanedione or metal chelate thereof (i.e. sulcotrione), an acetamide (i.e. dimethenamid), and atrazine being applied to unwanted vegetation, but do not exemplify the instant combination of 2-(substituted benzoyl)-1,3-cyclohexanedione or metal chelate thereof, an acetamide, and glyphosate or a salt thereof being applied to unwanted vegetation. This deficiency is cured by the teachings of Banks et al.

Banks et al. teach experiments conducted to evaluate the use of glyphosate in cotton and soybeans for Johnsongrass control. Glyphosate was applied postemergence to cotton and soybeans in the field. When directed to the basal of the crop stem, glyphosate provided season-long control of Johnson grass with the least amount of crop injury or yield reduction (see the abstract).

Finding of prima facie obviousness
Rational and Motivation (MPEP 2142-2143)

One of ordinary skill in the art would have been motivated to substitute glyphosate into the exemplified 3-way formulation taught by Fenderson et al. because Fenderson et al. suggests glyphosate as one of the possible herbicides that can be used in the formulations. Furthermore, glyphosate is a well known postemergence herbicide that can provide season long control of Johnsongrass weeds, as suggested by Banks et al.

Thus, it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to substitute glyphosate (for atrazine) into the exemplified 3-way formulations taught by Fenderson et al., since glyphosate is an effective postemergence herbicide that is used to treat the same weeds (i.e. Johnsongrass) as taught in Fenderson et al. Moreover, it is *prima facie* obvious to combine known herbicides taught to be useful for the same purpose. *In re Kerkhoven*, 626 F.2d 846, 850, 205 USPQ 1069, 1072 (CCPA 1980).

Although Fenderson et al. does not specifically teach seasonal control of unwanted vegetation, it is the Examiners position that since the herbicidal compositions taught by Fenderson et al. are shown to be effective 14, 30 and 60 days after application (see Examples 5 and 6), and since Applicant has described the length of time required for seasonal control to be "up to 120" in the instant specification (see page

2 lines 4-6), the limitation is met. Therefore, the claimed invention would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made because the prior art is fairly suggestive of the claimed invention.

Claims 1, 5, 11-14 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Feucht et al. (US 6,365,550), in view of Armel et al., Mesotrione, Acetochlor, and Atrazine for Weed Management in Corn, *Weed Technology*, Volume 17:284-290, 2003.

Appellant claims a method for the season-long control of unwanted vegetation, said method comprising a single post-emergence application of a herbicidal combination comprising a 2-(substituted benzoyl)-1,3-cyclohexanedione or metal chelate thereof, glyphosate or a salt thereof and an acetamide.

**Determination of the scope and content of the prior art
(MPEP 2141.01)**

Feucht et al. teach a synergistic herbicidal composition comprising a combination of flufenacet and glyphosate, for weed control (see the abstract, column 1 lines 42-67, column 2 lines 1-10), and the claims. The active compound combinations are useful for post-emergence application (see column 5 lines 25-27, and Example A). The active combinations are useful on crop plants such as maize (corn), rice, wheat, etc. (see column 3 lines 53-56). The combinations are useful on weeds of the genera

Chenopodium, Amaranthus, Echinochloa, Digitaria (i.e. crabgrass), Brachiaria (broadleaf), etc. (see column 3 lines 23-52). The active compound combinations may contain additional actives including herbicides (see column 5 lines 5-10). Example A discloses the combination of flufenacet (I) and glyphosate (II-I) being applied to weeds. After 3 weeks (21 days), the damage to the weeds is evaluated.

TABLE A1

<u>Post-emergence control herbicides</u>					
Active com- pounds	Appli- cation rate (g a.i./ha)	Apera- vine- vent	Aloper- cure- mycosporidiales	Echino- chloa crus- galli	Cheno- podium album
(I)	50	60%	60%	60%	0%
(II-1)	30	0%	0%	0%	0%
(I) + (II-1)	50 + 30	90% (80%)*	80% (60%)*	70% (60%)*	80% (0%)*

(see Example A, Table A1, in column 6).

Ascertainment of the difference between the prior art and the claims (MPEP 2141.02)

Feucht et al. do not teach a 2-(substituted benzoyl)-1,3-cyclohexanedione or metal chelate thereof. This deficiency is cured by the teachings of Armel et al.

Armel et al. teach field studies conducted to investigate the weed control and crop safety with postemergence (POST) applications of mesotrione alone and in mixtures with other herbicides (see the abstract). Mesotrione is a new herbicide registered for postemergence control of broadleaf weeds in corn (see page 284, introduction, third paragraph). Mesotrione has controlled several annual broadleaf weeds (*Brachiaria platyphylla*), large crabgrass (*Digitaria sanguinalis*), and barnyard

grass (*Echinochloa crus-galli*), by post emergence application (see page 284, introduction, fourth paragraph and page 285, third paragraph).

Finding of prima facie obviousness

Rational and Motivation (MPEP 2142-2143)

One of ordinary skill in the art would have been motivated to incorporate a 2-(substituted benzoyl)-1,3-cyclohexanedione (i.e. mesotrione) into the formulation taught by Feucht et al. because mesotrione is a known for post emergent application to crops for the control of weeds, including broadleaf, crabgrass, and barnyard grass, as suggested by Armel et al.

Thus, it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to incorporate a 2-(substituted benzoyl)-1,3-cyclohexanedione (i.e. mesotrione) into the formulations taught by Feucht et al., since it is mesotrione is an effective postemergence herbicide that is used on the same crops (i.e. corn) and used to treat the same weeds (i.e. Johnsongrass) as suggested by Feucht et al. Moreover, it is *prima facie* obvious to combine known herbicides taught to be useful for the same purpose. *In re Kerkhoven*, 626 F.2d 846, 850, 205 USPQ 1069, 1072 (CCPA 1980). And in the instant case, flufenacet, glyphosate, and mesotrione are all useful postemergence on corn, for the control of broadleaf, crabgrass, and barnyard grass.

Although Feucht et al. does not specifically teach seasonal control of unwanted vegetation, it is the Examiners position that since the herbicidal compositions taught by Feucht et al. are shown to be effective 21 days after application (see Example A), and since Applicant has described the length of time required for seasonal control to be "up to 120" in the instant specification (see page 2 lines 4-6), the limitation is met. Therefore, the claimed invention would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made because the prior art is fairly suggestive of the claimed invention.

Claims 1-9, 15 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hudetz et al. (US 5,981,432).

Appellant claims a method for the season-long control of unwanted vegetation, said method comprising a single post-emergence application of a herbicidal combination comprising a 2-(substituted benzoyl)-1,3-cyclohexanedione or metal chelate thereof, glyphosate or a salt thereof and an acetamide.

Determination of the scope and content of the prior art
(MPEP 2141.01)

Hudetz et al. teach herbicidal compositions comprising S-metolachlor (formula A) and at least one additional herbicide selected from glyphosate, sulcotrione, etc. (formula I-VII) (see the abstract, column 1 lines 30-45, columns 2-9, and column 10 lines 11-15).

It has been found that the single application of the combination of S-metolachlor and at least one additional herbicide are capable of effectively controlling a wide variety of weeds occurring in crops of useful plant postemergence without causing considerable damage to the plant (see column 1 lines 21-29 and column 10 lines 16-25). The combination are useful on crops, such as, cereal, maize corn), rice, etc. (see column 1 lines 8-13).

Example B1 test postemergence application of the a combination of a compound of formula I (S-metolachlor) and a herbicide of formula I-VII) (i.e. glyphosate, sulcotrione). The compounds were sprayed onto leaves and evaluated for efficacy after 18 days (see Example B1 in column 18).

Ascertainment of the difference between the prior art and the claims
(MPEP 2141.02)

Hudetz et al. do not exemplify the instant combination of 2-(substituted benzoyl)-1,3-cyclohexanedione or metal chelate thereof, an acetamide, and glyphosate or a salt thereof being applied to unwanted vegetation.

Finding of prima facie obviousness
Rational and Motivation (MPEP 2142-2143)

However, one of ordinary skill in the art would have been motivated to make the instant combination of 2-(substituted benzoyl)-1,3-cyclohexanedione (i.e. sulcotrione) or metal chelate thereof, an acetamide (i.e. S-metolachlor), and glyphosate or a salt thereof, and apply it to unwanted vegetation because Hudetz et al. suggest S-metolachlor in combination with at least one herbicide (i.e. sulcotrione, glyphosate) are highly effective in controlling a wider range of weeds and provides greater than expected additive action against weeds to be controlled.

Thus, it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to make the instant combination of 2-(substituted benzoyl)-1,3-cyclohexanedione (i.e. sulcotrione) or metal chelate thereof, an acetamide (i.e. S-metolachlor), and glyphosate or a salt thereof, and apply it postemergence to unwanted vegetation for the purpose of broadening the spectrum of activity against weeds as well as achieving a high degree of weed control.

Although Hudetz et al. does not specifically teach seasonal control of unwanted vegetation, it is the Examiners position that since the herbicidal compositions taught by Hudetz et al. are shown to be effective 18 days after application (see Example B1), and since Applicant has described the length of time required for seasonal control to be "up to 120" in the instant specification (see page 2 lines 4-6), the limitation is met. Therefore, the claimed invention would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made because the prior art is fairly suggestive of the claimed invention.

(10) Response to Argument

Appellants' arguments filed October 9, 2009 have been fully considered but they are not persuasive.

(1) Appellants argue that Fenderson et al. teach a three way mix in control of monocotyledon crops and Banks et al. teach away from the use of glyphosate because it is drawn to the use of controlling dicotyledon crops and also because the over the top application is said to injure the crops.

This argument is not convincing. As stated above in the 103 rejection of record, Fenderson et al. already suggest that an acetimide (e.g. dimethanimid) can be combined with additional herbicides including glyphosate and a 2-(substituted benzoyl)-1,3-cyclohexanedione (e.g. sulcotrione) for controlling both monocotyledon and dicotyledon crops (see column 4 lines 44-67, column 5 lines 1-61 and column 6 lines 52-58). Fenderson et al. further suggest that combination of dimethanimid and additional herbicides can be made into three way mixes (see column 7 lines 65-67). As it is already known in the art that glyphosate can be combined with dimethanimid and sulcotrione for the treatment of unwanted vegetation, Banks et al. was further cited in support of Fenderson et al., which disclosed that glyphosate is a well known postemergence herbicide that can provide season long control of Johnsongrass weeds. Thus, one of ordinary skill in the art would be motivated to make the instantly claimed combination in order to provide control of unwanted vegetation. Furthermore, the instant claims do not specify the type of weeds that are being treated or crops that the instant combination are being applied to.

(2) Next, Appellant argues that Feucht et al. and Armel do not teach the instant combination of herbicides. Appellant further argues that Armel et al. does not envision a single application of mesotrione.

This argument is not persuasive. It should be noted that Appellant utilizes "comprising" language in the instant method claims and thus, does not limit pre-emergence applications. The Examiner has interpreted the instant claims encompass pre-emergence applications of the herbicidal composition and limited to only one post emergence application of the instant herbicidal combination.

As stated in the 103 rejection of record above, Feucht et al. teach the combination of glyphosate and flufenacet for the pre- or post emergence treatment of weeds (see the abstract, column 5 lines 10-17 and 25-27, and Example A). Feucht et al. also teach that additional herbicides can be added to the formulation (see column 5 lines 5-7). Mesotrione is a known post emergence weed controller as suggested by Armel et al., and is used to control the same weeds as described in Feucht et al. Thus, it would have been obvious to one of ordinary skill to incorporate mesotrione into the formulations taught by Feucht et al. for the purpose of treating unwanted vegetation. It is noted that Armel do teach applications of mesotrione pre and post emergence in crops (see Tables 2 and 3). However, this does not teach away from the fact that mesotrione is a known and effective post-emergence herbicide, as suggested by Armel.

(3) Lastly, Appellants argue that Hudetz et al. only exemplifies using pre- and post-emergence treatment and no exemplification is drawn to the post emergence treatment only. Appellants further argue that Hudetz et al. do not exemplify the instant combination of herbicides.

These arguments are not convincing. Hudetz et al. do teach post-emergence application of compounds for the treatment of weeds (see column 1 lines 21-29, column 10 lines 37-40), and Example B1 in column 18). Although Hudetz et al. do not exemplify the the instant combination, Hudetz et al. do suggest that all the instant compounds can be combined together and are useful for the treatment of weeds by post-emergence application. It is noted that Hudetz et al. do teach herbicidal actives that are applied pre- and post-emergent, however, this is not a teaching away since Hudetz et al. specifically teach that the herbicidal composition can be applied by only postemergence application. Furthermore, disclosed examples and preferred embodiments do not constitute a teaching away from a broader disclosure of nonpreferred embodiments. In re Susi, 440 F.2d 442, 169 USPQ 423 (CCPA 1971).

From the teachings of the combined references, one of ordinary skill in the art would have had a reasonable expectation of success in producing the claim invention. Therefore, the invention as a whole would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made, as evidenced by the references, especially in absence to the contrary.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/Johann R. Richter/

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Conferees:

/SREENI PADMANABHAN/

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